

## Abstract

### Bidirectional use of a telescope for a free space optical communication system

Disclosed is a bi-directional telescope for a laser on air telecommunication system, the telescope comprising: a primary optical surface; at least one transmitting device forming at least one transmitting beam impinging against the primary optical surface at an at least one illuminated area, the at least one  
5 transmitting beam having a corresponding axis; and a receiving device collecting the power deflected by an optical surface of the primary optical surface into a receiving beam, the receiving beam having an axis. The telescope is characterized in that the optical surface of the primary optical surface is larger than the at least one illuminated area and in that the  
10 transmitting beam axis does not coincide with the receiving beam axis. A method for receiving and transmitting optical signals through the air by a bi-directional telescope is also described.